

Nemophora lapikella sp. n., a new fairy moth species (Adelidae) from South-Eastern Asia

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Summary

Nemophora lapikella sp. n., closely related to *N. chalybeella* (Bremer) and of *N. staudingerella* (Christoph), is described and illustrated from Far East Russia, Korea, Mainland China and Taiwan. Species of the *degeerella* species-group recorded in South-Eastern Asia are listed, and their morphological affinities with *N. lapikella* are briefly discussed.

Zusammenfassung

Nemophora lapikella sp. n., eine nahe bei *N. chalybeella* (Bremer) und *N. staudingerella* (Christoph) stehende Art aus dem Osten Russlands, Korea, China und Taiwan wird beschrieben und abgebildet. Die Arten der *degeerella*-Artengruppe aus Südostasien werden aufgelistet und ihre morphologischen Ähnlichkeiten mit *N. lapikella* kurz diskutiert.

Résumé

Nemophora lapikella sp. n., étroitement apparentée à *N. chalybeella* (Bremer) et à *N. staudingerella* (Christoph), est décrite de l'Extrême Orient de la Russie, de Corée et de Chine (y compris Taiwan). Les espèces du groupe d'espèces *degeerella* mentionnées d'Asie du sud-est sont énumérées, et leurs affinités morphologiques par rapport à *N. lapikella* sont discutées brièvement.

In course of preparation of the manuscript for the forthcoming book "Keys to the insects of the Far East of Russia. Lepidoptera" (Kozlov, 1997) it became apparent that one species of fairy moths widely distributed across South-Eastern Asia still remains undescribed. This species belongs to the *degeerella*-group, one of the most problematic species assemblages in the genus *Nemophora* Hoffmannsegg. Although the revision of this group is in preparation now, I was urged to publish a separate description of this new species to make the given name available prior to the appearance of the mentioned book.

The type material of all species of the *degeerella*-group to which *N. lapikella* sp. n. is compared (for the list see below), were examined during this study. Male genitalia of *N. chalybeella* (Bremer) and *N. staudingerella* (Christoph), two most similar species to *N. lapikella*, are figured by Kozlov (1997).

The male genitalia were examined and figured following the procedure previously described (Kozlov, 1993). The interocular index was calculated as the ratio between the vertical diameter of the compound eye and the interocular distance measured at a point of the frons midway between the base of the antennal sockets and the anterior tentorial pits (Davis, 1975).

The type specimens are deposited in Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZIN), College of Agriculture, Kangweon National University, Chuncheon, Korea (CAKU), Zoological Museum, University of Helsinki (MZH), The Natural History Museum, London, U. K. (BMNH), U. S. National Museum of Natural History, Smithsonian Institution, Washington, D. C., U. S. A. (USNM), Muzeul de Istorie Natural "Grigore Antipa", București, Romania (MINGA) and National Museum of Natural Sciences in Taichung, Taiwan, China (NMNST).

Nemophora lapikella n. sp.

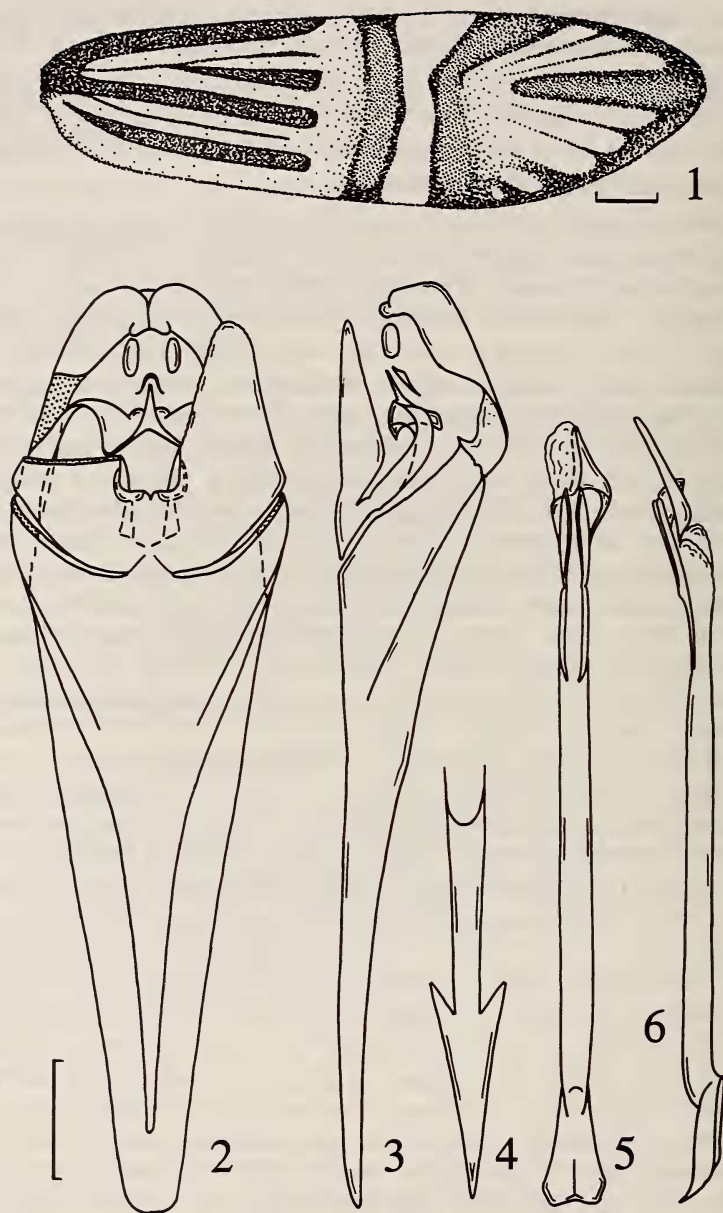
HOLOTYPE ♂, "Southern Primorye, Khasan reg., Slavjanka, 19.7.1990, M. Kozlov" (MZH).

PARATYPES. *Russia*: ♂, "Southern Primorye, Khasan reg., Slavyanka, 19.7.1990, M. Kozlov" (MZH); 5 ♂, "Southern Primorye, Khasanskiy rayon, Rjazanovka, 14.7.1983, M. Kozlov" (ZIN); ♀, Southern Primorye, Khasanskiy rayon, Rjazanovka, 5.8.1984, S. Sinev (labelled in Russian) (ZIN); 6 ♂, Southern Primorye, Khasanskiy rayon, 7 km N Zanadvorovka, 12-14.8.1984, S. Sinev (labelled in Russian) (ZIN); 2 ♂, "Amur, Staudinger [18]83" (BMNH); ♂, "Mandschurei, [Insel] Askold, Jankowski" (BMNH); ♂, ♀, "Ile Askold, 42 1/2° lat. N, 102° long (Mantschourie), M. Jankowski, 1878" (BMNH); ♂, ♀, "Ile Askold, M. Jankowski, 1880" (BMNH). *Korea*: ♂, "Korea North, Pyongsong 300 m, Chongryonsan Mts., 9.VII.1987, J. Jaros" (MZH); ♀, Southern Korea, "Seomyun, Yangyang, 10.VII.1987, K. T. Park" (CAKU). 2 ♂, "Gensan, Corea, 31.I.1886" (Leech) (BMNH); ♂, "Korea, E[nd].VI.1926, S. Issiki" (USNM). *China*: 38 ♂, 12 ♀, "China, Chang-Yang, 4000-6000 ft, Ichang, Pratt Coll. Leech 1886" (BMNH); ♂, "China, West Tien-Mu-Shan, 1600 m, P[rovin]z. Chekiang, 11.VI.1932, H. Höne" (MINGA); ♂, Shantung "Mou-Pin [Mou-p'ing], 1897, ex R. P. Déjean" (BMNH); ♂, ♀, "Taiwan, Tombara [Tunpala], 5.VI.1943, S. Issiki" (USNM); ♂, "Taiwan, Rarasan [Loloshan], 28.VI.1943, S. Issiki" (USNM); 2 ♂, 2 ♀,

"Taiwan, Nökö [Nengkao], 26.VI.1929, S. Issiki" (USNM); ♂, "Taiwan, Hualien Co., Tayulin-Tzer-en, 15.VII.1995, S.H.Yen" (NMNST).

DIAGNOSIS. Very similar to *N. chalybeella*, differs from it in the abrupt change of male antennal colour at the level of forewing fascia, widely rounded apex of valva and symmetrical straight carinae on the ventral wall of aedeagus in the male genitalia.

DESCRIPTION. *Male.* Forewing length 8.8-11.6 mm; wing expanse 19-25 mm. Vertex and upper part of frons yellow to ochreous; frons otherwise yellow to bronze. Proboscis yellow. Interocular index ca. 0.5. Labial palpus short ($1.2 \times$ vertical eye diameter), thin, light yellow. Antenna $3.2-3.4 \times$ length of forewing, with simple inwardly directed pegs. Scape and proximal region of flagellum bronze to cupreous brown; distal region of flagellum light silver-white; the coloration changes abruptly at the level of forewing fascia. Tegula and thorax (dorsum) bronze. Forewing (Fig. 1) bright yellow at base to ochreous near fascia. Basal part of forewing with four bronze longitudinal stripes bordered with dark brown scales; two of these stripes jointly begin from the wing base and expand one along costal margin, another along CuA vein; third stripe situated between these two is shorter (nearly a half of other three stripes), with narrow proximal part connected to thin dark line which follows radial stem; another thin dark line follows CuP vein; fourth stripe not connected to wing base and follows anal stem. Distally, all four stripes expand to $0.40-0.45 \times$ forewing length and do not reach inner margin of fascia situated at ca. $0.5 \times$ forewing length. Fascia medially narrow, $0.12-0.16 \times$ forewing length, expanding both to the costal ($0.20-0.35 \times$ forewing length) and dorsal ($0.17-0.25 \times$ forewing length) wing margins. Median band of fascia yellow, nearly of the same width as glossy silver-grey marginal bands bordered with brown scales. Distal field ochreous near fascia, otherwise straw-yellow, with dark brown outer margin; termen bronze, with golden shimmering. Neither narrow dark brown lines arising from forewing margin, nor prominent glossy violet to bronze spot situated between RS_4 and M_2 , reach fascia. However, in some specimens the inner points of dark radial lines dorsad of glossy spot are fused, isolating oval yellow spots from ochreous zone adjacent to fascia. Forewing cilia bronze. Hindwing dark brown, glossy bronze; costa yellowish; cilia brownish grey. Legs yellow, except fore tibia and apical parts of other tibia and all tarsal segments which are purplish-brown to brown. Epiphysis at $1/2$, reaching apex of tibia. Hind tibia with sparse yellow hairs; proximal pair of spurs situated at ca. $3/5$ from the base of tibia. Abdomen yellow ventrally, greyish yellow dorsally.



Figs. 1-6. *Nemophora lapikella* sp. n. : 1 — forewing pattern (reference bar 1 mm) ; 2 — male genital complex, ventral view ; 3 — same, lateral view ; 4 — juxta ; 5 — aedeagus, ventral view ; 6 — same, lateral view (reference bar 0.25 mm).

Female. Forewing length 7.8-8.5 mm; wing expanse 17-19 mm. Antenna $1.1-1.2 \times$ forewing length; basal $2/3$ of flagellum covered with dark brown to purplish scales; distal part of flagellum light grey to silver white. Otherwise similar to male.

Male genitalia (Figs. 2-6). Tegumen dome-shaped, without medial ridge. Socii elongate, about $1.3 \times$ diameter of aedeagus. Vinculum of moderate length ($2.6-2.8 \times$ length of valva), narrowly rounded anteriorly; lateral margins almost straight. Valva slightly longer than tegumen; valvae fused medially to ca. $1/3 \times$ valval length. Medial margins of valvae proximally parallel to each other and forming almost right angle with the distal margin of fused valval base; both median and dorsal margins of valvae distally straight; tip of valva widely rounded. Length of aedeagus ca. $1.2 \times$ length of vinculum; ventral wall of aedeagus distally with two short (ca. $0.25 \times$ length of aedeagus) well-sclerotized symmetrical carinae. Walls of aedeagus smooth; tip asymmetrical, with the prominent band arising from right wall. Juxta ca. $0.5 \times$ length of aedeagus, with very narrow (length ca. $3 \times$ width) pointed arrow-head.

BIOLOGY. In Southern Primorye most specimens were collected in very sparse forests formed by *Quercus dentata*, near the sea shore. Males are gregarious, swarming in sunshine. The species occurs late in the season (mid-July to mid-August in Russian Primorye, end of June to July in China and Korea).

DISTRIBUTION. Russia (Southern Primorye), Korea, Mainland China, Taiwan.

NOTE. The external similarity of species resembling *N. degeerella* (L.), as well as variation in wing pattern and head coloration, have created numerous taxonomic problems. According to recent knowledge, in south-eastern Asia the *degeerella* species-group is represented by 15 species: *N. amatella* (Staudinger), *N. augites* (Caradja & Meyrick), *N. bellela* (Walker), *N. chalybeella* (Bremer), *N. congruella* (Fischer von Roeslerstamm), *N. disjunctella* (Caradja), *N. japonica* Stinger, *N. karafutonis* (Matsumura), *N. lapikella* sp. n., *N. ochsenheimerella* (Hübner), *N. polychorda* (Meyrick), *N. schrencki* (Bremer), *N. staudingerella* (Christoph), *N. syfaniella* (Caradja, 1927) and *N. wakayamensis* (Matsumura). Some more species remain undescribed, and the full taxonomic treatment of this group will be published elsewhere.

Five species (*N. chalybeella*, *N. japonica*, *N. lapikella* sp. n., *N. polychorda* and *N. staudingerella*) differ from the remaining representatives of the *degeerella* species-group by glossy (silver-grey to blue or bronze) metallic iridescent spot in forewing outside the fascia. This spot is

directed along the veins and usually positioned between RS_4 and M_2 . In external characters, *N. lapikella* sp. n. differs from the other four species in the coloration of the male antenna, and from *N. japonica* and *N. staudingerella* also in the smaller extension of the dark brown coloration in radial and cubital sectors of forewing (less than $1/2$ of the zone outside fascia).

In the male genitalia, *N. lapikella* sp. n. differs from *N. polychorda* in the presence of a pair of carinae on the ventral wall of aedeagus, and from *N. japonica* in the absence of a funnel-shaped structure at the tip of aedeagus. In both *N. lapikella* and *N. staudingerella*, carinae on the ventral wall of aedeagus are symmetrical, whereas in *N. chalybeella* the left carinae is corkscrew-shaped apically. From *N. staudingerella* the new species differs by the longer vinculum ($2.6-2.8 \times$ length of valva) and the smooth right wall of aedeagus.

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